independently a linear, branched or cyclic alkyl group having 1-8 C atoms or an aryl group and $x = 0, 1$ or 2 and $y = 0, 1$ or 2, where $(x+y) \leq 2$, at a temperature in the range of 0-120°C over a period of 0.5-24 hours and with thorough mixing in an alcoholic medium which contains water and (1) a weak mono- or polybasic acid or (2) a weak base or (3) a weak mono- or polybasic acid and a weak base or (4) an acidic or basic salt, the water and alkoxysilane employed being in a molar ratio of 2-500:1, to said fillers and pigments.

REMARKS

Claims 23-38 are active in the case. Claims 31-38 stand withdrawn from consideration. Reconsideration is respectfully requested

Claim Rejection, 35 U.S.C. 112, Second Paragraph

The issue raised with respect to Claims 23, 25, 27 and 29 in particular, concerning the use of the term "alcoholic" is believed obviated by the deletion of the term from each of the claims. Accordingly, the basis for the rejection is overcome and withdrawal of the rejection is respectfully requested.

Prior Art Rejection

The active claims under consideration are all directed to a method of hydrophobizing and oleophobizing a substrate, wherein the substrate treated varies in type. All claimed method embodiments of Claims 23, 25, 27 and 29 employ the same fluoroalkyl-functional group containing organosilane compound of formula Ia or Ib which is applied to a given substrate and in the application hydrolyzed in an alcoholic medium which contains water and one of four

specifically defined acidic or basic agents. In the case of Claim 23, the surfaces treated are those of plastics, metals, textiles, leather, cellulose and starch products and the surfaces of mineral building materials, all of which thereby have dirt- and color-repellency. In the case of Claim 25, the surfaces specifically of buildings and facades are coated. In the case of Claim 27, glass fibers are coated and in Claim 29 fillers and pigments are silanized by the coating process of the invention.

In his comments on page 4 of the Office Action, in justifying his position as to the obviousness of the various process embodiments of the invention, the Examiner properly comments that each generic claim is a method of treating some type of surface, but then states that the claims contain product-by-process language which describes a process of preparing a hydrophobic/oleophobic polymer. This is not the case, however. In the various embodiments of the present process, an organosilane compound of formula Ia or Ib, which is **not** a polymer compound, upon application to a surface to be treated, is simply **hydrolyzed** by one of the four types of acidic or basic, aqueous alcoholic media described. The hydrolysis process cleaves one or more of the hydrolyzable groups in a compound of formula Ia or Ib thereby forming free silanol groups in the given compound which interact with and bond to the surface being treated. This hydrolysis process is **not** a process of polymerization of organosilane monomer. While, in a sense, the hydrolysis process results in a product, it must be understood that in the present process, a compound of formula Ia or Ib, which is applied on a surface, in this states experiences hydrolysis, which forms modified organosilane molecules which immediately react with the surface structure of the surface treated, thereby bonding thereto. Accordingly, an isolated, non-bonded organosilane product is not produced in the method embodiments of the invention, nor is an independent, hydrophobic/oleophobic polymer produced. What is produced in all method

embodiments of the invention is a surface of some type coated with a bonded organosilane material in which each bonded organosilane molecule has one mono-, oligo-or perfluorinated alkyl (aryl) group and optionally one or two alkyl or aryl group(s).

In view of the discussion above applicants believe that it is therefore clear that the cited and applied Ono et al, '328 and Takamizawa et al '306 patent references do not suggest the process embodiments of the invention under active consideration.

In the case of Ono et al, a surface to be treated and coated with an organosilane material, is, in fact, treated with a combination of **two** quite different organosilane materials which are a perfluoroalkyl group-containing organic silicon compound of formula I and a methypolysiloxane material of formula II. Upon application of the combined material, a hydrolyzate is formed by the co-hydrolysis of the two materials applied to a surface. The patent specifically teaches at column 4, lines 14-23 that, in fact, both organosilane materials **must be present** in a formulation which is applied to a surface in which the ratio of blended compound of formula I to compound II ranges from 10/90 to 90/10. If the amount of the fluoroalkyl group containing organosilane of formula I is present in an amount of less than 10 %, the resulting hydrolyzed organosilane material has insufficient water repellency and if the amount of the organosilane is greater than 90 %, the resulting coating exhibits less stain proofness. A composition based solely on the fluoroalkyl group containing organosilane of formula I is **not** an option as a coating material. Thus, the hydrolyzed and bonded organosilane material prepared on a treated surface by the process of Ono et al is completely different from the coating resulting from the claimed method embodiments of the present invention where one organosilane compound of formula Ia or Ib is used alone in a coating operation. Withdrawal of the obviousness ground of rejection under 35 USC 103(a) of the present claims based on Ono et al alone is respectfully requested.

As to the Takamizawa et al patent, the same is similar to the disclosure of Ono et al in that a coating composition is described which is formed of a mixture of three organosilane materials, one of which is a fluoroalkylalkoxysilane of the formula indicated at column 1, lines 56-59, which is present in an amount of 5 to 40 % by weight in the three component formulation described at the bottom of column 1. Upon coating the organosilane mixture on a surface, **co-hydrolysis and co-condensation** of the three compounds occurs resulting in a coating which is said to exhibit high hardness and excellent flexibility, anti-abrasion strength and resistance against solvents. Nowhere shown or suggested is the application of one of the three organosilane components alone to a surface with subsequent hydrolysis; certainly not the fluoroalkylalkoxysilane component. In fact, the disclosure at column 3, lines 11-24 describes the importance of the presence of each of the three components of the composition; noting in particular that for the fluoroalkylalkoxysilane component, any amount of less than 5 % of the component in the composition results in a coating or film product which does not exhibit the desired lubricity, while any amount of the component in an amount greater than 40 % lowers the hardness of the resulting film. Again, as in Ono et al, there is no teaching or suggestion of using the fluoroalkylalkoxysilane component alone in a coating composition which would result in a film product having the properties achieved by the disclosed process of the patent. Accordingly, the process disclosed in the Takamizawa et al patent is not that of the present invention, because clearly the co-hydrolyzed and co-condensed product film of the reference is not at all chemically like the coated film product applied and bonded to a substrate prepared from the single organosilane compound of formula a or Ib of the present claims. Thus, the Takamizawa et al patent is not believed to obviate the present process as claimed in its several embodiments, and withdrawal of the obviousness ground of rejection raised under 35 USC 103(a) is respectfully

requested.

The Examiner is thanked for the indication of allowable subject matter in this case in the form of Claims 28 and 29.

Applicants concur with the citation of the remaining references as of secondary interest to the present application.

It is believed that the claims are in proper condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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MARKED-UP COPY OF THE AMENDMENT

IN THE CLAIMS

Please amend Claims 23, 25, 27 and 29 as follows:

--23. (Amended) A method of hydrophobizing and oleophobizing and for simultaneously providing a dirt- and color-repellent treatment of surfaces, of plastics, of metals, of textiles, leather, cellulose and starch products, and of mineral building materials, by applying to such [an alcoholic] a fluoroalkyl-functional group containing organosiloxane based composition, which is essentially chlorine free, prepared by the controlled hydrolysis of at least one fluoroalkyl-functional group containing organosilane of formula Ia or Ib:

$$R^1\text{-}(CH_2)_2Si(R^2)_y(OR)_{3-y} \qquad \text{(Ia) or}$$

$$R^1\text{-}Y\text{-}(CH_2)_2SiH_x(R^2)_y(OR)_{3-x-y} \qquad \text{(Ib),}$$

in which R^1 is a mono-, oligo- or perfluorinated alkyl group having 1-9 C atoms or a mono-, oligo- or perfluorinated aryl group, Y is a CH_2, O or S group, R^2 and R are each independently a linear, branched or cyclic alkyl group having 1-8 C atoms or an aryl group and $x = 0, 1$ or 2 and $y = 0, 1$ or 2, where $(x+y) \leq 2$, at a temperature in the range of 0-120°C over a period of 0.5-24 hours and with thorough mixing in an alcoholic medium which contains water and (1) a weak mono- or polybasic acid or (2) a weak base or (3) a weak mono- or polybasic acid and a weak base or (4) an acidic or basic salt, the water and alkoxysilane employed being in a molar ratio of 2-500:1.

25. (Amended) A method of protecting buildings and facades, comprising:

applying [an alcoholic] a fluoroalkyl-functional group containing organosiloxane based

composition, which is essentially chlorine free, prepared by the controlled hydrolysis of at least one fluoroalkyl-functional group containing organosilane of formula Ia or Ib:

$$R^1\text{-}(CH_2)_2Si(R^2)_y(OR)_{3-y} \qquad \text{(Ia) or}$$

$$R^1\text{-}Y\text{-}(CH_2)_2SiH_x(R^2)_y(OR)_{3-x-y} \qquad \text{(Ib),}$$

in which R^1 is a mono-, oligo- or perfluorinated alkyl group having 1-9 C atoms or a mono-, oligo- or perfluorinated aryl group, Y is a CH_2, O or S group, R^2 and R are each independently a linear, branched or cyclic alkyl group having 1-8 C atoms or an aryl group and $x = 0, 1$ or 2 and $y = 0, 1$ or 2, where $(x+y) \leq 2$, at a temperature in the range of 0-120°C over a period of 0.5-24 hours and with thorough mixing in an alcoholic medium which contains water and (1) a weak mono- or polybasic acid or (2) a weak base or (3) a weak mono- or polybasic acid and a weak base or (4) an acidic or basic salt, the water and alkoxysilane employed being in a molar ratio of 2-500:1, to buildings and facades.

27. (Amended) A method for coating glass fibers, comprising:

coating said glass fibers with [an alcoholic] a fluoroalkyl-functional group containing organosiloxane based composition, which is essentially chlorine free, prepared by the controlled hydrolysis of at least one fluoroalkyl-functional group containing organosilane of formula Ia or Ib:

$$R^1\text{-}(CH_2)_2Si(R^2)_y(OR)_{3-y} \qquad \text{(Ia) or}$$

$$R^1\text{-}Y\text{-}(CH_2)_2SiH_x(R^2)_y(OR)_{3-x-y} \qquad \text{(Ib),}$$

in which R^1 is a mono-, oligo- or perfluorinated alkyl group having 1-9 C atoms or a mono-, oligo- or perfluorinated aryl group, Y is a CH_2, O or S group, R^2 and R are each independently a linear, branched or cyclic alkyl group having 1-8 C atoms or an aryl group and $x = 0, 1$ or 2 and $y = 0, 1$ or 2, where $(x+y) \leq 2$, at a temperature in the range of 0-120°C over a

period of 0.5-24 hours and with thorough mixing in an alcoholic medium which contains water and (1) a weak mono- or polybasic acid or (2) a weak base or (3) a weak mono- or polybasic acid and a weak base or (4) an acidic or basic salt, the water and alkoxysilane employed being in a molar ratio of 2-500:1.

29. (Amended) A method of silanizing fillers and pigments, comprising:

applying [an alcoholic] a fluoroalkyl-functional group containing organosiloxane based composition, which is essentially chlorine free, prepared by the controlled hydrolysis of at least one fluoroalkyl-functional group containing organosilane of formula Ia or Ib:

$$R^1\text{-}(CH_2)_2Si(R^2)_y(OR)_{3-y} \qquad \text{(Ia) or}$$

$$R^1\text{-}Y\text{-}(CH_2)_2SiH_x(R^2)_y(OR)_{3-x-y} \qquad \text{(Ib),}$$

in which R^1 is a mono-, oligo- or perfluorinated alkyl group having 1-9 C atoms or a mono-, oligo- or perfluorinated aryl group, Y is a CH_2, O or S group, R^2 and R are each independently a linear, branched or cyclic alkyl group having 1-8 C atoms or an aryl group and $x = 0$, 1 or 2 and $y = 0$, 1 or 2, where $(x+y) \leq 2$, at a temperature in the range of 0-120°C over a period of 0.5-24 hours and with thorough mixing in an alcoholic medium which contains water and (1) a weak mono- or polybasic acid or (2) a weak base or (3) a weak mono- or polybasic acid and a weak base or (4) an acidic or basic salt, the water and alkoxysilane employed being in a molar ratio of 2-500:1, to said fillers and pigments.--